

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Cheung, et al.

Serial No.: 10/686,486

Confirmation No.: 8014

Filed:

October 15, 2003

For:

APPARATUS FOR ELECTRO

CHEMICAL DEPOSITION OF
COPPER METALLIZATION WITH
THE CAPABILITY OF IN-SITU
THERMAL ANNEALING

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

๛๛๛๛๛๛๛๛๛๛๛๛๛๛

Group Art Unit: 1753

Examiner:

Unknown

CERTIFICATE OF MAILING

37 CFR 1.8

I hereby certify that this correspondence is being deposited on \(\frac{\pmathbb{\pmanhbb{\pmathbb{\p

04/23/04

W/W/A

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

While the information submitted in this Supplemental Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

04/27/2004 JADD01

00000058 200782 10686486

01 FC:1806

180.00 DA

In accordance with 37 CFR § 1.97, this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No. 20-0782/AMAT/3421.C2/NAN.

Respectfully submitted,

N. Alexander Nolte

Registration No. 45,689

MOSER, PATTERSON & SHERIDAN, L.L.P.

3040 Post Oak Blvd. Suite 1500

Houston, TX 77056

Telephone: (713) 623-4844 Facsimile: (713) 623-4846

Attorney for Applicant(s)

PTO/SB/08a (08-03)

Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE ersons are required to respond to a collection of information unless it displays a valid OMB control number. Under the Paperw

Substitute for form 1449A/PTO

SUPPLEMENT INFORMATION DISCLES STATEMENT BY APPLICA

(Use as many sheets as necessary)

Sheet

Application Number	10/686,486
Filing Date	OCT. 15, 2003
First Named Inventor	CHEUNG, ET AL.
Group Art Unit	1753
Examiner Name	UNKNOWN
Attorney Docket Number	AMAT/3421.C2/CMP/ECP/RKK
Submission Date	APRIL 23, 2004

	U.S. PATENT DOCUMENTS					
Examiner	Cite No.1	Document Number	Publication Date	Name of Patentee or	Pages, Columns, Lines, Where	
Initials*	NO.	Number-Kind Code ^{2 (if known)}	ode ^{2 (if known)} MM-DD-YYYY Ap	Applicant of Cited Document	Relevant Passages or Relevant Figures Appear	
	A1	US-				
	A2	US-				
	A3	US-				
	A4	US-				
	A5	US-		, , <u>, , , , , , , , , , , , , , , , , </u>		
	A6	US-				
	A7	US-				
	A8	US-				
	A9	US-				

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite	Foreign Patent Document	Publication Date	Name of Patentee or	Pages, Columns, Lines,	T ⁶
initiais	No. 1 Country Code ³ -Number ⁴ -Kind Coode ⁵ (if known) MM-DD-YYYY Applicant of Cite	Applicant of Cited Document	Where Relevant Passages or Relevant Figures Appear			
	B1	EP 0 421 735 A2	04/10/1991	KABUSHIKI KAISHA TOSHIBA		
	B2	EP 0 881 673 A2	12/02/1998	INTERNATIONAL BUSINESS MACHINES CORPORATION		
	ВЗ	EP 1 037 263 A2	09/20/2000	APPLIED MATERIALS, INC.		
	B4	EP 1 085 557 A2	03/21/2001	APPLIED MATERIALS, INC.		
	B5	JP 4-131395	05/06/1992			
	B6	JP 4-280993	10/06/1992			
	B7	JP 54-148112 W/ENG. ABSTRACT	11/20/1979	NAKAGAWA KK		
	В8	JP 58-182823 W/ENG. ABSTRACT	10/25/1983	NIPPON DENKI KK .		
	В9	JP 6-17291 W/ENG. ABSTRACT	01/25/1994	NEC CORP		
	B10	JP 63-118093	05/23/1988	TANAKA ELECTRON INC		
	B11	WO 97/12079	04/03/1997	INTEL CORPORATION		
	B12	WO 99/40615	08/12/1999	SEMITOOL, INC.		
	B13					

Examiner **Date Considered**

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. skind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

						44-1-	L .
Please	type a	i pius	sign	(+)	inside	tnis	DO

PTO/SB/08b (08-03)

Approved for use through 06/30/2006. OMB 0651-0031 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Papen

persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for form 1449B/PTO

APR 2 6 2004 SUPPLEMEN INFORMATION DISCLOS

(Use as many sheets as necessary)

of 2 Sheet

STATEMENT BY APPLICA

Application Number	10/686,486	
Filing Date	OCT. 15, 2003	
First Named Inventor	CHEUNG, ET AL.	
Group Art Unit	1753	
Examiner Name	UNKNOWN	
Attorney Docket Number	AMAT/3421.C2/CMP/ECP/RKK	
Submission Date	APRIL 23, 2004	

		NON PATENT LITERATURE DOCUMENTS			
Examiner Cite No.1		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			
		COLOMBO, Wafer Back Surface Film Removal, Central R&D, SGS-Thomson Microelectronics, Agrate, Italy, Spin Tech Technology, 6 pages.			
		Semitool Products/Sales from www.Semitool.com Metallization and Interconnect, October 27, 1998, 4 pages.			
	-	Verteq from www.verteq.com Welcome to Verteq Online Products Overview, 5 pages.			
		Technologies Corporation from www.laurell.com, 6 pages.			
		SINGER, Nonuniformity of Copper Electroplating Studied, Wafer Processing, Semiconductor International. June 1998, page 70.			
		Tantalum, Copper and Damascene: The Future of Interconnects, Semiconductor International, June 1998, pages 91-98.			
		PITNEY, Ney Contact Manual, Electrical Contacts for Low Energy Uses, October 8, 1974, 19 pages.			
		HOLM, Electric Contacts Theory and Application, Fourth Completely Rewritten Edition, Springer-Verlag, New York Inc., August 21, 1967, 27 pages.			

Examiner **Date Considered**

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.